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THE APPLICATION OF SPLINTS TO GROWING CHILDREN

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THIS short article on the care of growing children wearing mechanical means of support or fixation is not intended to deal with those aspects of the case which will be supervised by the surgeon in charge, but rather to direct attention to those points which immediately concern the nurse or mother.

The form of the apparatus required and the character of the material employed will, of course, be decided by the doctor, but the care of the patient and of the splint, whether of wood, steel, leather, hardened rubber, poroplastic, or plaster-of-Paris, will fall upon the nurse.

It will be her duty to maintain a careful watch, to determine that the device is effective, gives little or no inconvenience, does not unnecessarily interfere with any function of the body, that excoriations do not result, and where difficulties arise to meet and remove them, or, if beyond her power, to report to the surgeon without delay.

It will at once appear that in order for any appliance to perform its duty in an efficient manner it must fit the patient perfectly. From this stand-point I must discourage the use of ready-made instruments, and strongly advise that every splint be made to order from outlines and measurements taken from the body of the patient. Deviations from the natural outline cannot be satisfactorily overcome by paddings or dressings, which are almost certain to shift, or by a difference of resistance fail to give proper support.

The continued use of any appliance is naturally very trying to the patient, and great care must be exercised to prevent abrasions of the skin. Especially is this the case when pressure is required or when an impervious material is employed.

In the first class of cases the skin covering bony prominences must be carefully tended, and any indication of failure of nutrition or circulation reported, that the points of resistance may be shifted.

In the second case, the natural excretions, if allowed to remain in contact, act as irritants and soften or inflame the skin, often giving rise to troublesome dermatitis.

A few general directions may be noted as applying in the majority of cases.

THE PREPARATION OF THE PART TO BE ENCLOSED.

When possible, the skin should be carefully washed with warm water and some non-irritant soap, rinsed with cool water, and dried thoroughly. In order to harden the surface it should then be gently rubbed with alcohol, care being taken not to roughen the skin. It is well to apply some drying-powder, as oxide of zinc or powdered talcum, containing a small proportion of boracic acid.

THE APPLICATION OF THE SPLINT.

In most cases a bandage is first applied to the part for protection. The material used should be soft, elastic, and a good absorbent, so that the perspiration will pass into and through it as rapidly as possible. Thin flannel cut on the bias or stockinette bandages are most satisfactory. Few folds or reverses should be employed, as they indent the skin, cause discomfort, and tend to give rise to abrasions. Bony prominences or points of pressure must be protected by including small pads of cotton-wool or folded gauze. In no case should this bandage or the pads be made thicker than absolutely necessary, as such procedure interferes with the close application of the splint to every part of the surface. When applied to a limb, the bandage must begin by enclosing the extremity, whether included on the splint or not, so that support may be given and interference with the circulation avoided.

The splint is then applied, and care is taken to see that it is in apposition to every part. Fixation follows by means of straps and buckles, laces, adhesive-plaster, or bandage, only such pressure being exerted as is necessary to prevent motion. Ascertain that the circulation is not impeded by noting that the color of the skin remains natural in the distal portions. In the case of a limb the nails are a splendid guide.

Pressure applied by the point of a finger should be rapidly followed by a restoration of the normal color. If the part becomes dark and bluish, the venous circulation is interfered with and swelling will result; if white and cold, the arterial supply is cut off, indicating deep and dangerous pressure. Numbness is the sign of pressure on a nerve, and if continued may result in permanent injury to the nerve. In every case the tension must be relieved. In the case of plaster splints, they must be cut through and opened sufficiently to remove the symptoms, and then fixed by a bandage.

We may now classify splints under two heads: (1) immovable splints, which are left in position for some time, as fracture splints or plaster casts for the immobilization of joints or the correction of deformities, and (2) removable splints, which are to be worn for long periods, but may be taken off without injury, such as the irons for club-feet, Thomas's hip- or knee-splints, or spinal supports.

Immovable splints must be inspected daily, the edges trimmed and protected, and the correct position of the part ascertained. Atrophy of the muscles from disuse soon supervenes and the splint ceases to be effective; it will then be re-applied by the doctor.

If pressure sores have developed, they should be cleaned and dressed with some mild antiseptic ointment or powder, or, if mere abrasions, coated with some protective, as collodion. If a sore is enclosed in a permanent splint and requires constant attention, a window must be cut, the edges protected by oiled silk, and the dressing attended to daily.

In growing children plaster splints should be renewed every month or six weeks and the skin attended to. In these cases the greatest care must be exercised in removing the dead skin, or the surface will be left raw and irritable.

Removable splints should also be attended to daily. The fastenings being loosened, the part should be carefully lifted from the splint without disturbing the seat of injury and placed upon some suitable support, as a pillow or folded blanket, the patient not being permitted to use any muscular force. The part is then washed and prepared as before and the splint re-applied.

To keep pace with the growth of the child, these appliances should be made with extension arrangements allowing enlargement to be made from time to time, or faulty positions will be assumed and permanent injury result. In those cases where hip- or knee-splints are worn for long periods, and especially where extension splints are required and a patten or raised sole is worn on the opposite foot, the greatest care must be taken to see that the pelvis is not tilted, or spinal curvature will follow.

In connection with this question of splints I must touch briefly upon the application of methods of extension, which may be secured by weight and pulley, or by elastic traction attached to the splint.

By far the most common method of securing the necessary grip of the limb is by means of strips of adhesive-plaster applied longitudinally on either side, and in the case of hip disease reaching well above the knee, to avoid straining the ligaments of this joint. These strips extend for some distance beyond the foot and are attached to a block from which extension is made. The whole limb is then lightly bandaged —a heavy covering tends to increase irritation.

In many cases this method is satisfactory, but a large number of children have skins so sensitive that an eczematous condition is induced, which may, if neglected, go on to ulceration, and, as I have frequently seen, permanent cicatrices remain.

Where extension is to be used for a long time, as in morbus coxæ, etc., some other method must be employed. Adhesive-plaster may still be used if not particularly irritating. A two-inch strip reaching from well above the knee to a foot or more beyond the limb is cut from above in three tails as far as the ankle. The centre strip is run along the side of the limb longitudinally; the lateral strips are carried spirally up the limb, the anterior one commencing in front and the posterior one behind, those from the opposite side crossing in the median line in front and behind.

This method gives a good grip of the limb, and allows us to remove the plaster at intervals with alcohol or benzine and apply again, the strips running on areas previously uncovered.

There is even a better method, which has for years given the greatest satisfaction in the Hospital for Sick Children, Toronto, Ont. It is a modification of the stocking-extension and is applied as follows:

A strong cotton stocking is taken and cut off about two inches above the ankle; a piece of tape is sewn to this on either side, forming a loop reaching a foot or more beyond the limb. After preparing the leg as before described, the stocking is slipped on, reaching well above the knee.

A bandage is then applied to the foot and carried up the leg to the stocking. The tape-loop is excluded and the bandage continued over the stocking to just below the knee, where a special circular turn is made, figure-of-eight over the knee, and a couple of circular turns above the condyles of the femur, from which points alone traction is made. The top of the stocking is reflected downward and secured by two or three circular turns. This must be readjusted daily, and if properly applied does not slip, is exceedingly comfortable, and can be used for months without producing the slightest lesion.

Straps applied above the knee and gaiters to the ankle, made of leather or cloth fastened by laces or buckles and used for purposes of extension, are usually satisfactory.

When the weight and pulley is used the patient is generally in bed, and counter-extension is secured by utilizing the weight of the body. In order to prevent the patient from being drawn down to the foot of the bed, the bottom legs are placed upon blocks from four to six inches high.

If the patient refuses to lie quietly or is very restless, it may be necessary, in order to secure extension in the proper direction, to confine him with shoulder-straps fastened to the bed, or in the case of small children a towel folded and laid across the chest, pinned on either side to the mattress, will answer every purpose.

When used in connection with splints counter-extension is usually secured by means of a perineal band which should be well but not heavily padded. In these cases the perineum must receive particular attention and be kept perfectly dry, being bathed in alcohol and powdered daily at least. If it becomes chafed, the strap should be lightly bandaged and well smeared with borated vaseline or zinc ointment. If, however, with every care ulceration threaten, the perineal band must be applied to the opposite side until the part is healed.

Let your precautions be commenced early. Persist in your treatment of cleanliness and care, and if further difficulties arise or do not yield to these simple measures, I must leave your surgeon to supply what I have omitted.

THE PROBLEM OF THE SUPERINTENDENT

BY ELIZABETH ROBINSON SCOVIL
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THE position of superintendent of a hospital is perhaps the most difficult to fill of any of those that are open to the trained nurse.

In no other branch of the service do the cares and labors and responsibilities of her calling seem to weigh so heavily upon a woman as in this, which should be the flower of them all.

Nerves and health suffer from the perpetual strain, and if it is too long continued nervous exhaustion is apt to be the result, and a change of occupation or a long rest becomes imperative.

Medical men frequently fill these positions for years without apparently being in any way the worse for the arduous work involved. Why should women, who are in some ways better fitted for the task, so often break down under it?

Hospital-keeping is house-keeping on a large scale, the care of a family of which many of the members are unable to care for themselves. It would seem as though women were especially well fitted for this charge, as house-keeping and home-making are their natural avocations. Why, then, do they find the burden too heavy to be borne with ease?

THE SUPERINTENDENT'S DUTIES.

The care of a hospital involves many complex problems. To begin with, there are not one, but four or five different families to be provided for, their claims adjusted, and their wants satisfied,—the patients,